

CLAIMS

- 5 1. An electrical generator which includes
 a) an elongated support fixed at one end but free to move or flex
 b) a coil with electric outputs secured to said elongated support remote from
 the fixed end
 c) a magnetic field adjacent the coil such that movement of the coil induces
10 an electric current.
- 15 2. An electrical generator as claimed in claim 1 in which a piezo membrane
 supports the coil so that the movement of the coil stresses the piezo
 membranes and generates a voltage.
- 20 3. An electrical generator as claimed in claim 1 or 2 in which there are
 several membranes selected to provide a wider vibrational bandwidth.
- 25 4. An electrical generator as claimed in claim 1 or 2 in which the membrane
 is L shaped and fixed at the top with the coil mounted on the foot of the L.
- 30 5. An electrical generator as claimed in claim 1 in which the magnetic field is
 provided by permanent magnets which are configured to maximize the
 magnetic flux in the path of the moving coil.
6. An electrical generator as defined in claim 1, which incorporates a DC to
 DC voltage converter and a voltage detector.
7. A rectification device for a parasitic energy harvester in which vibration or
 motion induces relative movement between a coil and a magnet to induce
 an electric current in the coil in which a piezo electric membrane is
 incorporated into the support for either the magnet and/or the coil so that

the vibration or motion also produces a voltage in the piezoelectric membrane sufficient to power the rectification of the voltage produced by the relative movement between the coil and the magnet.

5 8. A motion sensor which includes

- a) A body portion
- b) an elongated support fixed at one end to said body portion but free to move or flex in response to movement or vibration of said body
- c) a coil secured to said elongated support remote from the fixed end, said coil having electric outputs
- d) a magnetic field adjacent the coil such that movement of the coil induces an electric current which is indicative of the degree of motion of the body.